

REMARKS

The office action dated January 11, 2007 (the "Office Action") has been received and noted. Claims 1-7 were examined. Claims 1-7 were rejected. Claims 1-3 are cancelled. The specification at pages 6 and 10 are amended, as are claims 4, 5 and 7. The amendments to the specification are to correct an obvious error. An amendment to correct an obvious error does not constitute new matter where one skilled in the art would recognize the existence of error in the specification, but also the appropriate correction. MPEP § 2163.07(II). Support for the claim amendments can be found in, for example, page 5 of the amended specification. As such, no new matter has been added. Claims 4-7 remain in the Application. Reconsideration of the pending claims is requested in view of the above amendments and following remarks.

Applicants express their appreciation for the telephone interview conducted between the attorney of record for the Application and the Examiner on February 6, 2007. During the interview, the Examiner indicated that claims 4-7 would likely be definite and novel if the organic dye molecule of claim 1 was illustrated between the oxygen atom and the "D" moiety of the O-D groups of the molecule illustrated in claim 4. Applicants respectfully submit that the above-amendments are in accordance with the Examiner's suggestions.

I. Claims Rejected Under 35 U.S.C. § 112

Claims 1-7 were rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

The Examiner states that variable X in formulae A-1 and A-2 is monovalent yet is defined as a carbonyl group, which is a divalent radical. In response thereto, Applicants cancel formula A-1 and cancel "a carbonyl group" in the accompanying text of claim 7. Claims 1-3 are cancelled.

The Examiner states that claims 4, 5 and Scheme 3 of the Specification teach that chromophore D directly connects to a polyamide main chain. Appropriate correction has been made. The corrections are supported in, for example, page 5 of the specification, which states in pertinent part, "there is provided a nonlinear optical polymeric compound containing polyimide

repeating units to which the organic dye molecular material having the formula (1) or (2) above is coupled.” (App., p.5.) Accordingly, Applicants respectfully request that the Examiner withdraw his rejection under 35 U.S.C. § 112, second paragraph.

II. Claims Rejected Under 35 U.S.C. § 103

Claims 1-5 were rejected under 35 U.S.C. 103(a) as being unpatentable over *Two-Step Synthesis of Side-Chain Aromatic Polyimides for Second-Order nonlinear Optics* by Chen et al. (“*Chen*”) in combination with (Chemical Abstracts, 133:89901, 2000) by Ashworth et al. (“*Ashworth*”). In order to establish a *prima facie* case of obviousness: (1) there must be some suggestion or motivation, either in the references themselves or in the knowledge generally available to one of ordinary skill in the art, to modify the reference; (2) there must be a reasonable expectation of success; and (3) the references when combined must teach or suggest all of the claim limitations. MPEP § 2142. Applicants respectfully submit that a *prima facie* case of obviousness has not been established.

More specifically, the combined references do not teach or suggest all of the claim limitations of amended independent claim 4. Amended independent claim 4 includes essentially 3 elements: (i) a polyimide unit; (ii) at least one organic dye molecule attached to a polyimide unit; and (iii) at least one organic chromophore molecule selected from the group consisting of an amino-isophorone-dicyanide (AIDC) derivative, i.e., formula A-2, and an amino-isophorone-isooxazolone (AIOX) derivative, i.e., formula A-3, attached to the organic dye molecule. (App., claim 4.)

By contrast, *Chen* teaches a chromophore, which may be 2-(N-ethyl-4-(tricyanovinyl)aniline) ethanol, Disperse Red 1 or hydroxyl DCM incorporated directly onto a polyimide backbone. (Chen, p.537, ¶ 2.) The chromophores taught in *Chen* may be represented by formula A-1 of the Application, which formula has been cancelled. Thus, *Chen* only teaches a polyimide backbone attached to 2-(N-ethyl-4-(tricyanovinyl)aniline) ethanol, Disperse Red 1 or hydroxyl DCM chromophore (i.e., representatively, cancelled formula A1 of the Application), which is only representative of teaching element (i) of independent claim 4. *Ashworth* does not cure this lack of teaching or suggestion because *Ashworth* only teaches attachment of a chromophore to a polymethylmethacrylate (PMMA) backbone or 3,5-dihydroxybenzyl alcohol

group. The 3,5-dihydroxybenzyl alcohol group may be representative of element (ii) of the amended claim 4. Therefore, the combined references do not teach or suggest all of the claim limitations of independent claim 4, namely, elements (i), (ii) and (iii), as discussed previously. Dependent claims 5-7 depend on independent claim 4 and therefore include all of its limitations.

Moreover, Applicants respectfully submit that the Examiner has improperly combined the references because at least *Chen* teaches away from Applicants' claimed invention. MPEP § 2145(X)(D)(1). Specifically, *Chen* discloses that its strategy is to "covalently bond the chromophores **directly to** the backbone of a preformed polyimide, by which the troublesome synthesis of diamine monomer and the harsh imidization processes were avoided." (Chen, p.536, ¶ 1.) By contrast, Applicants' claimed invention includes an organic dye molecule **between** the chromophore and polyimide backbone. (App., claim 4.) *Ashworth*, on the other hand, discloses that a chromophore may be attached to **either** a PMMA backbone **or** 3,5-dihydroxybenzyl alcohol. There is no suggestion or motivation within the references to combine *Chen* with *Ashworth* to arrive at Applicants' claimed invention.

In view of the above remarks, Applicants respectfully submit that independent claim 4 and its respective dependent claims are allowable in view of the references.

CONCLUSION

In view of the foregoing, it is believed that all claims now pending, namely claims 4-7, and are in condition for allowance and such action is earnestly solicited at the earliest possible date. If the Examiner believes that a telephone conference would be useful in moving the application forward to allowance, the Examiner is encouraged to contact the undersigned at (310) 500-4787.

Respectfully submitted,

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